

CLAIM AMENDMENTS:

Claim 1 (Previously Presented): A semiconductor device, comprising:

a semiconductor chip;

metal thin wires respectively connected to electrodes on said semiconductor chip;

a wiring board having an opening for accommodating said semiconductor chip and being electrically connected to said semiconductor chip by said metal thin wires;

a heat spreader having a flat principle surface, and having said semiconductor chip and said wiring board provided over the flat principal surface;

a common adhesive layer which is in direct contact with and provided over the principal surface of said heat spreader and is in direct contact with both said semiconductor chip and said wiring board so as to bond both said semiconductor chip and said wiring board to said heat spreader, so that a heat transfer effect between said semiconductor chip and said heat spreader is about equal to a heat transfer effect between said wiring board and said heat spreader;

and

an encapsulating resin for sealing at least said metal thin wires,

wherein said semiconductor chip is disposed in the opening of said wiring board, and is separated from edges of said wiring board that collectively define the opening by a space so that said semiconductor chip does not completely cover said heat spreader within the opening, and

wherein a portion of said heat spreader within the opening that is not covered by said semiconductor chip being completely covered by said adhesive layer.

Claim 2 (Previously Presented): The semiconductor device as claimed in claim 1, further comprising a second adhesive layer having the same thermal characteristic as said adhesive layer provided over the reverse surface of said heat spreader.

Claim 3 (Previously Presented): The semiconductor device as claimed in claim 2, further comprising a radiating fin provided over said second adhesive layer.

Claim 4 (Previously Presented): A method of manufacturing a semiconductor device, comprising the following steps:

preparing a heat spreader having a flat, principle surface;

forming a common adhesive layer over the principal surface of said heat spreader;

disposing a semiconductor chip and a wiring board over, and in direct contact with, said common adhesive layer, the wiring board having an opening for accommodating said semiconductor chip, said semiconductor chip being disposed in the opening of said wiring board, and being separated from edges of said wiring board that collectively define the opening by a space so that said semiconductor chip does not completely cover said heat spreader within the opening, a portion of said heat spreader within the opening that is not covered by said semiconductor chip being completely covered by said common adhesive layer;

connecting electrodes of said semiconductor chip and said wiring board by metal thin wires; and

sealing at least said metal thin wires with an encapsulating resin,
wherein the common adhesive layer is utilized to bond both the semiconductor chip and the wiring board to the principal surface of the heat spreader, so that a heat transfer effect between the semiconductor chip and the heat spreader is about equal to a heat transfer effect between the wiring board and the heat spreader.

Claim 5 (Previously Presented): A method of manufacturing a semiconductor device, comprising the following steps:

preparing a heat spreader;

forming a first adhesive layer and a second adhesive layer over a principal surface of said heat spreader;

forming a wiring board over said first adhesive layer, the wiring board having a through opening;

forming a semiconductor chip over said second adhesive layer and disposing the semiconductor chip in the through opening so that all side surfaces of said semiconductor chip are completely surrounded by said wiring board;

connecting electrodes of said semiconductor chip and said wiring board by metal thin wires;

sealing said second adhesive layer and part of said semiconductor chip with a first encapsulating resin; and

sealing said metal thin wires and said semiconductor chip with a second encapsulating resin after said first encapsulating resin has been cured;

wherein said connecting electrodes is performed after said sealing said second adhesive layer and part of said semiconductor chip with a first encapsulating resin, and before said sealing said metal thin wires and said semiconductor chip with a second encapsulating resin.

Claim 6 (Original): The method as claimed in claim 5, wherein said first encapsulating resin and said second encapsulating resin are respectively encapsulating resins different in material from each other.

Claim 7 (Currently Amended): A method of manufacturing a semiconductor device, comprising the following steps:

preparing a heat spreader;

forming a first adhesive layer and a second adhesive layer over a principal surface of said heat spreader;

forming a wiring board over said first adhesive layer, the wiring board having a through opening;

forming a semiconductor chip over said second adhesive layer and disposing the semiconductor chip in the through opening so that all side surfaces of said semiconductor chip are completely surrounded by said wiring board;

connecting electrodes of said semiconductor chip and said wiring board by metal thin wires;

after said electrodes are connected to said wiring board by the metal thin wires, sealing said second adhesive layer and part of said semiconductor chip with an encapsulating resin; and

after said encapsulating resin has only partially cured, sealing said metal thin wires and said semiconductor chip with more of said encapsulating resin that was used to seal said second adhesive layer and part of said semiconductor chip; and
curing said encapsulating resin.

Claim 8 (Previously Presented): The semiconductor device as claimed in claim 1, wherein said adhesive layer covers the entire principle surface of said heat spreader.

Claims 9-10 (Cancelled).